

REMARKS

This patent application presently includes Claims 22-42, which correspond to original claims as explained below. All claims stand rejected. The claims were amended to define the applicant's invention more clearly, and all rejections are respectfully traversed.

Initially, it is noted that the attorney who filed this application on behalf of the undersigned, John Todaro, was not aware that the claims had been amended during the international stage and, accordingly, submitted a preliminary amendment based upon the original, unamended claims. Based upon the examiner's comments in making the claim rejections under 35 U.S.C. §112, it is clear that the U.S. file, prior to the preliminary amendment, contained Claims 1-16 as amended in the international stage, as it should have. Accordingly, the undersigned has canceled Claims 1-21 in the present application and has submitted new Claims 22-42. Of these, Claims 22-36 correspond to Claims 1-15 as they existed in this application prior to the preliminary amendment. Amendments have been made to eliminate multiple dependent claims and to rewrite Claim 33 in independent form, and Claims 37-42 were added to restore some of the dependencies were present in the multiple dependent claims. Amendments have also been made to 26-28, 33-35, 37, 41 and 42, in order to address the claim objections raised by the examiner. However, no amendments have been made for a statutory purpose related to patentability.

Regarding the claim objections, the examiner asserted that "an" or "a" should be inserted before limitations in Claim 22 (old Claim 1) in order to provide an antecedent basis. The undersigned respectfully disagrees. Additional external shielding

and particulate borosilicate were not referred to in a manner that suggested they were referred previously. Indeed, "external shielding" and "particulate borosilicate" are entirely appropriate ways to refer to the particular components for the first time, and adding a pronoun before them would be inaccurate and confusing.

The examiner also suggested that "the" should be inserted before "low" in Line 3 of Claim 23 (2). The undersigned disagrees. If the examiner were to refer to the description related to Figs. 1 and 2, she will realize that there is a filler of refracting material (13) which is different from the refractory shielding (9).

Regarding Claim 26 (5) "particulate" has been inserted before "borosilicate" at Line 1 in order to provide a consistent reference to the corresponding element. For the same reason, "power " has been inserted at Line 1 of Claims 27 (6) and 28(7) and "particulate" has been inserted at Line 2 of Claim 28 (7).

Regarding Claim 28, the examiner objected that there was no antecedent basis for the term "content" at Lines 1 and 2. The undersigned respectfully disagrees. Claim 22 clearly defines that the refractory material includes particulate borosilicate and boric acid power. In other words, the refractory material must have some content of those two substances. Thus, asserting that there is no antecedent basis for the term "content" makes no sense.

Regarding Claim 34, the examiner asserted that there was no antecedent basis for "both tubes" at Line 3. Claim 34 depends indirectly from Claim 23 which recites "inner and outer metal tubes." Accordingly, there is a clear antecedent basis for "both tubes."

Regarding Claim 35, the examiner objected that there was no antecedent basis for "constriction process" and "annealing process." Claim 35 now recites, instead, "being constricted", for which there is an antecedent basis at Line 2 of Claim 23, and Line 3 of Claim 35 recites "annealing", for which there is an antecedent basis at Line 2 of the claim ("the sheath is annealed.")

Similar objections to those discussed above that have been raised by the examiner have been resolved in the present set of claims.

Original Claims 1, 5, 7, 13, 16, 18-19 were rejected under 35 U.S.C. §112 as indefinite. These claims will be referred to by their current numbers below, where all rejections are respectfully traversed. Regarding Claim 22 (1), the examiner asserted "an additional" was unclear, because it appeared that only one external shielding was described. Those skilled in the art would understand that a "mineral insulated thermocouple cable" is already shielded, so the shielding made of a refractory material would clearly be considered an additional shielding.

Regarding Claim 36, the examiner asserted that it was confusing, because it contained no limitations. The undersigned has now included the language "the steps of" in Line 1 of Claim 36 to make it clear that the verbs which follow are, in fact, steps of a method.

Regarding Claim 33, Line 3 now recites "the low temperature sintering material." Similarly, Claim 34 recites "the sheath" and no longer includes the language "as above defined."

Regarding the rejection of original Claim 5, 7, 18 and 19, these occurred because the wrong set of claims was amended, as explained above. In the present set of claims, there is no duplication.

Regarding claim 22 (1) and all dependent claims that depend from Claim 22, the examiner's rejection was based upon the use of the term "low temperature sintering and", since this appears to be a relative term that was not otherwise defined in the application. Regarding any set of operating circumstances, those skilled in the art would understand what appropriate temperatures would be for carrying out a sintering process and, accordingly, would understand what is meant by "low temperature sintering." The examiner, too, appears to understand what is meant by low temperature sintering when she states at Page 5 of the office action that "Kilp teaches a partial (low-temperature sintering)." Again, at Page 6 of the office action in discussing Francis, the examiner states that "the material is heated at low temperature without melting (low temperature sintering)." Thus, she is hardly in a position to assert that low temperature sintering" is terminology that would not be understood by those skilled in the art.

In view of the foregoing, all of the claims are now believed to be clear and concise, and all rejections under 35 U.S.C. §112 should be withdrawn.

Claims 1-10, 12, 14 and 18-21 were rejected as obvious over Kilp in view of Hall and Francis. This rejection is respectfully traversed. None of these references, nor any combination thereof, renders the present claims obvious.

Kilp relates to a method for reducing tube size and compacting compactable material. It is used to achieve high degrees of compaction of products such as annular,

nuclear fuel elements. It is a high precision and expensive approach and thus directly contrary to the present applicant's efforts to achieve cost effective manufacture of a low-cost item. Furthermore, this patent is not directed in anyway to a thermocouple. The examiner has assumed that a thermoelectric device or material can be or is a thermocouple. There is no justification for this incorrect assumption by the examiner. The problem addressed by Kilp and the object of the patent are set out in Column 1 of the patent. These are of no relevance or consequence to thermocouples. The examiner's reliance on this patent as a reference is entirely misplaced, because Kilp is *not* analogous art. On this basis, alone, the entire obviousness rejection must fail, but the remaining references will be discussed for completeness.

The Hall patent relates to a coaxial configuration for each of two thermoelements which, together, comprise a thermocouple. The outer sheath or sheathes as depicted in Fig. 3 and the encased wire are all made from the same alloy. Consequently, two coaxial thermoelements have to be fused together to form a thermocouple junction. In contrast, in a thermocouple in accordance with the present invention, the encased wire and outer sheath are made of different materials. A thermocouple junction is formed by the target molten metal forming an electrical connection between these two different materials. Thus, Hall teaches nothing of consequence with respect to the thermocouple structure in accordance with the present invention and, if anything, teaches away.

Regarding the Francis patent, its disclosure is directly in conflict with the object of the present invention. Francis seeks to produce a highly porous composite of low

thermal mass, whereas the basic requirement of the present invention is a dense composite of high thermal mass. Furthermore, the zinc borosilicate of Francis must be electrically conductive. In contrast, the present application makes it clear at Page 2, Lines 7-9 that the measuring probe must be protected against electrical conductivity of its immediate protection material. Accordingly, Francis is also inconsistent with achieving the present invention.

The undersigned is compelled to object to the Examiner's entire approach to making the obviousness rejections in the present instance. In the Office Action, the Examiner has improperly, selectively combined disclosures from three diverse references to make the present rejections. Basically, the examiner has used the disclosure of the present application as a guide to arbitrarily select features from the cited references, to make the rejection. Apparently, the examiner has overlooked the requirement that for references to be combined, "there must be some reason, suggestion or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge cannot come from the applicants' invention itself." *In Re Oetiker*, 24 U.S.P.Q. 2d 1443 (Fed. Cir. 1992). "The mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 23 U.S.P.Q. 2nd 1780, 1783 (Fed Cir. 1992).

It is error to reconstruct the patentee's claimed invention from prior art by using the patentee's claim as a "blueprint" when prior art references require selective combination to render obvious a subsequent invention. There must be some reason for

the combination other than the hindsight obtained from the invention itself. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132 (Fed. Cir. 1985).

Indeed, the only disclosure for the combination suggested by the examiner (which, nevertheless, does not lead to the present invention) is the present patent application itself. As stated by the CAFC in *In Re Fritch*, 23 U.S.P.Q. 2d. 1780 (Fed. Cir. 1992): "[I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious... This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

The CAFC has also stated that:

As in all determination under 35 U.S.C. '103, the decision maker must bring judgment to bear. It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps.

In Re Gorman, 18 U.S.P.Q. 2d. 1885 (Fed. Cir. 1991).

It might very well be asked how the present invention could be considered obvious, since, as explained above, there are substantial benefits derived from the invention and none of the references even suggests it.

We do not pick or choose among the individual elements of assorted prior art references to recreate the claimed invention, but rather, we look for some teaching or suggestion in the references to support their use in the particular claimed combination.

Symbol Technologies, Inc. v. Opticon, Inc., 19 U.S.P.Q. 2d. 1241 (Fed. Cir. 1991). It is by now well settled that obviousness cannot be established by combining the teachings of prior art references to produce a claimed invention, absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929 (Fed. Cir. 1984).

In summary, the examiner has no basis for making the combination she suggests, and even if that combination were made, it would not lead to the present invention.

For all of the above reasons, the present obviousness rejection is improper and should be withdrawn. All of these claims are allowable.

Claim 15 was rejected as obvious over Kilp, Hall, and Francis, further in view of AU 9712601. This reference adds nothing in terms of overcoming the deficiencies of Kilp, Hall and Francis as proper or meaningful obviousness references. Accordingly, the rejection of Claim 15, as well as all of the other claims subject to the obviousness rejection must fail for the reasons already stated.

Regarding Claim 33, the examiner indicated that it would be allowable if rewritten in independent form and so as to overcome the rejections under 35 U.S.C. §112. Claim 33 has now been so rewritten and is therefore in condition for allowance.

Applicant's attorney has made every effort to place this patent application in condition for allowance. It is therefore earnestly requested that the application, as a whole, receive favorable reconsideration and that all of the claims be allowed as presently

constituted. Should there remain any unanswered questions, the examiner is requested to call the applicant's undersigned attorney at the telephone number given below.

Respectfully submitted,


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